



Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
for
Holyoke Water Works

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

- inventory land uses within the recharge areas of all public water supply sources;
- assess the susceptibility of drinking water sources to contamination from these land uses; and
- publicize the results to provide support for improved protection.

Susceptibility and Water Quality

Susceptibility is a measure of a water supply's potential to become contaminated due to land uses and activities within its recharge area.

A source's susceptibility to contamination does *not* imply poor water quality.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, disinfecting, filtering, or treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Actual water quality is best reflected by the results of regular water tests. To learn more about your water quality, refer to your water supplier's annual Consumer Confidence Reports.

Table 1: Public Water System Information

<i>PWS Name</i>	Holyoke Water Works
<i>PWS Address</i>	20 Commercial Street
<i>City/Town</i>	Holyoke
<i>PWS ID Number</i>	1137000
<i>Local Contact</i>	Mr. David Conti
<i>Phone Number</i>	413-356-0442

Introduction

We are all concerned about the quality of the water we drink. Drinking water supplies may be threatened by many potential contaminant sources, including storm runoff, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures.

Refer to Table 3 for Recommendations to address potential sources of contamination. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

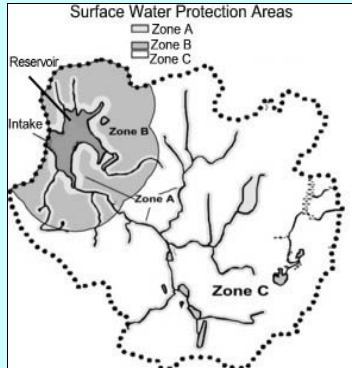
This report includes the following sections:

1. Description of the Water System
2. Land Uses within Protection Areas
3. Source Water Protection
4. Appendices

Section 1: Description of the Water System

What is a Watershed?

A watershed is the land area that catches and drains rainwater down-slope into a river, lake or reservoir. As water travels down from the watershed area it may carry contaminants from the watershed to the drinking water supply source. For protection purposes, watersheds are divided into protection Zones A, B and C.



Glossary Protection Zones

Zone A: is the most critical for protection efforts. It is the area 400 feet from the edge of the reservoir and 200 feet from the edge of the tributaries (rivers and/or streams) draining into it.

Zone B: is the area one-half mile from the edge of the reservoir but does not go beyond the outer edge of the watershed.

Zone C: is the remaining area in the watershed not designated as Zones A or B.

The attached map shows Zone A and your watershed boundary.

System Susceptibility:

Moderate

Source Name:

Source ID

Susceptibility:

McLean Reservoir	1137000-03S	Moderate
Manhan Reservoir	1137000-05S	Moderate

Holyoke Water Works maintains two active reservoirs for their drinking water supply. The Manhan Reservoir (1137000-05S) also known as the Tighe-Carmody reservoir, supplies approximately 95% of the City's water demand. The McLean Reservoir (1137000-03S) provides the balance of the water needs for the Water Works. The Holyoke Water Works maintains a waiver from filtration for both the McLean and Manhan Reservoirs. The Ashley, Whiting and White Reservoirs and the Coronet and Pequot Wells are maintained by the City as Emergency Sources of water. Emergency Sources will not be further assessed in this report.

The watershed for Holyoke Water Works' Manhan Reservoir is located in the Berkshire foothills towns of Southampton, Westhampton, Huntington and Montgomery. The White Reservoir was the main reservoir prior to the construction of the larger, Manhan Reservoir located downstream of the White Reservoir. Presently, the White Reservoir is essentially a flow through reservoir with the dam gates left open. The watershed has steeply sloping hillsides and broader stream valleys. The overburden material consists of till on the dominant uplands and glacially derived stratified drift deposits or recent stream (alluvium) deposits of sand and gravel in the narrow valleys. The bedrock in the watershed is predominantly metamorphosed sedimentary and volcanic rocks of the Waits River Formation and the Goshen Formation with mapped intrusions of the Williamsburg Granodiorite. The structural geology of the eastern part of the Berkshire Massif is described as a complex series of folds and faults. The watershed is 92% forest with the remaining land use residential and agricultural. The Water Works owns approximately 52% of the watershed and another 4% is protected through Town, state ownership or conservation restrictions.

The watershed for the in-town, McLean Reservoir is located entirely in Holyoke along the ridgeline of the Holyoke Range. The topography is steep or sloping with exposed bedrock or thin till covering the bedrock throughout the watershed. The bedrock is composed of the columnar, Holyoke Basalt. The watershed is approximately 99% forest or water while the remaining land area is open land, wetland, residential use or transportation corridor. The Holyoke Water Works owns approximately 73% of the McLean Reservoir watershed. Please refer to the attached map to view the boundaries of the protective zones.

The water from the reservoirs is disinfected with chlorine and chloramines, fluoride is added and the water is treated for corrosion control prior to distribution. For current information on monitoring results and treatment, please refer questions to the Public Water System contact person listed above in Table 1 for a copy of the most recent Consumer Confidence Report.

Section 2: Land Uses in the Protection Areas

There are few activities that pose significant anthropogenic threats to the reservoirs. However, due to the nature of surface water supplies, the sources are considered highly vulnerable to potential contamination. The Holyoke Water Works' active reservoirs are reasonably well protected, in part, because of the remote location and the proactive measures taken by the Water Works, such as ownership or protection of nearly 56%. The overall ranking of susceptibility is moderate based on the presence of at least one moderate threat land use activity in the watershed. Land uses and activities that are considered potential sources of contamination are listed in Table 2.

Key Land Uses and Protection Issues include:

1. Activities in Zone A
2. Residential land use
3. Transportation corridors (legal and illegal)
4. Forestry/Watershed Management
5. Protection Planning
6. Utility Line Right-of-Way

1. Activities in Zone A - The Zone As for the reservoirs includes all areas within 400 feet of the reservoirs and within 200 feet of either side of all streams that flow into the reservoirs. Land use activities within a Zone A may have an impact on surface water sources. Wild animals, farm animals and domestic pets can be carriers of waterborne diseases such as Giardia, Cryptosporidium, Salmonella, etc., while stormwater run off from roadways can carry other contaminants. There is beaver activity and there are local roads, Route 202, a small parking area, a few residential areas with non-commercial agricultural activities and part of the treatment facility within the Zone A of the system's reservoirs.

Zone A Recommendations:

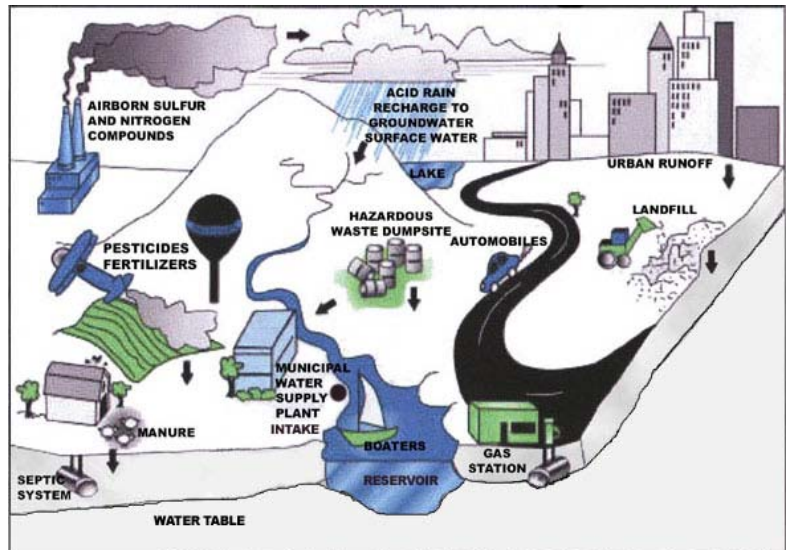
- ✓ Continue to monitor and protect the Zone As. Prohibit new activities from the Zone As.
 - ✓ Continue to monitor activities at the treatment facility to protect the Zone A especially activities associated with chemicals and wastewater at the facility.
 - ✓ Maintain the current practice of wildlife management in the reservoirs and Zone As.
 - ✓ Follow the watershed protection plan for prioritizing land within the Zone As and acquire and/or protect the land as prescribed in the plan. Consider alternatives to fee simple purchase such as Memorandum of Understanding, Right of First Refusal, and Conservation Restrictions.
- 2. Residential land use** – Approximately 70 acres of the Manhan Reservoir watershed consists of residential land uses and approximately 1.0 acre in the McLean Reservoir watershed. Municipal sewers are not available in either watershed, therefore on-site septic systems are used. If managed improperly, activities associated with

Benefits of Source Protection

Source Protection helps protect public health and is also good for fiscal fitness:

- Protects drinking water quality at the source
- Reduces monitoring costs through the DEP Waiver Program
- Treatment can be reduced or avoided entirely, saving treatment costs
- Prevents costly contamination clean-up
- Preventing contamination saves costs on water purchases, and expensive new source development

Contact your regional DEP office for more information on Source Protection and the Waiver Program.



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Figure 1: Sample watershed with examples of potential sources of contamination

residential areas can contribute to drinking water contamination. Common potential sources of contamination include:

- **Septic Systems** – Improper disposal of household hazardous chemicals to septic systems is a potential source of contamination to the groundwater because septic systems lead to the ground. If septic systems fail or are not properly maintained they may be a potential source of microbial contamination.
- **Household Hazardous Materials** - Hazardous materials may include automotive wastes, paints, solvents, pesticides, fertilizers, and other substances. Improper use, storage, and disposal of chemical products used in homes are potential sources of contamination.
- **Heating Oil Storage** - If managed improperly, Underground and Aboveground Storage Tanks (UST and AST) can be potential sources of contamination due to leaks or spills of the fuel oil they store.
- **Stormwater** – Catch basins transport stormwater from roadways and adjacent properties to the ground and surface waters. As flowing stormwater travels, it picks up debris and contaminants from streets and lawns. Common potential contaminants include lawn chemicals, pet waste, and contaminants from automotive leaks, maintenance, washing, or accidents.
- **Agricultural activities** – Even non-commercial agricultural activities can pose a potential threat to surface water supplies. The improper management of manure from farm animals and horses may result in contamination of feeder streams.

Residential Land Use Recommendations:

- ✓ Continue implementation of the Watershed Resource Protection Plan (WRPP) by providing information to residents regarding best management practices (BMPs) for protecting water supplies. Utilize the fact sheet “Residents Protect Drinking Water” available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMPs for common residential issues.
- ✓ Copies of this report and the technical assistance documents will be forwarded to the Board of Health and Planning Board in the communities within which your water supply protection areas are located. Continue your ongoing efforts to encourage those boards to adopt protection controls in their communities and to provide fact sheets to residents as appropriate.
- ✓ Continue your current practice of reviewing development proposals in the communities that your watershed protection areas are located within and through that process, comment on proposed projects as appropriate, to protect the public water supply. Refer the appropriate boards to the MA DEP website at the following address for information on manure management, pesticide and fertilizer BMPs and other aspects of water supply protection <http://www.state.ma.us/dep/brp/dws/protect.htm>, as applicable.
- ✓ Local Boards of Health and Conservation Commissions should make available to hobby farmers, information about protecting their



What are "BMPs?"

Best Management Practices (BMPs) are measures that are used to protect and improve surface water and groundwater quality. BMPs can be structural, such as oil & grease trap catch basins, nonstructural, such as hazardous waste collection days or managerial, such as employee training on proper disposal procedures.

Source Protection Decreases Risk

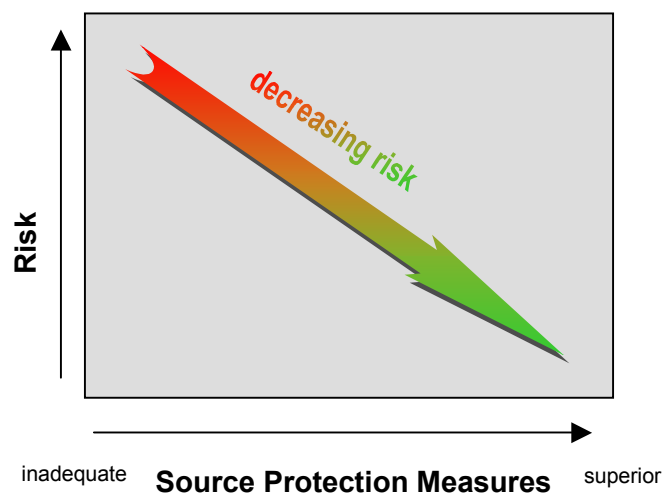


Figure 2: Risk of contamination decreases as source protection increases. This is true for public water systems of any susceptibility ranking, whether High, Moderate, or Low.

Potential Source of Contamination vs. Actual Contamination

The activities listed in Table 2 are those that typically use, produce, or store contaminants of concern, which, if managed improperly, are potential sources of contamination (PSC).

It is important to understand that a release may never occur from the potential source of contamination provided facilities are using best management practices (BMPs). If BMPs are in place, the actual risk may be lower than the threat ranking identified in Table 2. Many potential sources of contamination are regulated at the federal, state and/or local levels, to further reduce the risk.

Table 2: Land Use in the Watersheds

For more information, refer to Appendix B: Regulated Facilities within the Water Supply Protection Areas

Land Uses	Quantity	Threat	Source	Potential Contaminant Sources*
Residential				
Fuel Oil Storage (at residences)	Few	M	03S, 05S	Fuel oil: spills, leaks, or improper handling
Lawn Care / Gardening	Few	M	03S, 05S	Pesticides: over-application or improper storage and disposal
Septic Systems / Cesspools	Few	M	03S, 05S	Hazardous chemicals: microbial contaminants, and improper disposal
Miscellaneous				
Aquatic Wildlife	Actively managed	M	All	Microbial and organic contaminants
Domestic Animals/ non-commercial farming	Several	M	05S	Microbial and organic contaminants from manure, possibly pesticides, petroleum products
Clandestine Dumping	Historical	M	05S	Debris containing hazardous materials or wastes
Stormwater Drains/ Retention Basins	Numerous	L	03S, 05S	Debris, pet waste, and chemicals in stormwater from roads, parking lots, and lawns
Transmission Line Right-of-Way	1	L	03S	Corridor maintenance pesticides: over-application or improper handling; construction
Transportation Corridors including trails (legal and illegal)	Numerous	M	All	Fuels and other hazardous materials: accidental leaks or spills; pesticides: over-application or improper handling. Erosion and illegal access to water.
Notes: <ol style="list-style-type: none"> When specific potential contaminants are not known, typical potential contaminants or activities for that type of land use are listed. Facilities within the watershed may not contain all of these potential contaminant sources, may contain other potential contaminant sources, or may use Best Management Practices to prevent contaminants from reaching drinking water supplies. For more information on regulated facilities, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area information about these potential sources of contamination. For information about Oil or Hazardous Materials Sites in your protection areas, refer to Appendix C: Tier Classified Oil and/ or Hazardous Material Sites. <p>* THREAT RANKING - The rankings (high, moderate or low) represent the relative threat of each land use compared to other PSCs. The ranking of a particular PSC is based on a number of factors, including: the type and quantity of chemicals typically used or generated by the PSC; the characteristics of the contaminants (such as toxicity, environmental fate and transport); and the behavior and mobility of the pollutants in soils and groundwater.</p>				

own wells and the public water supply by encouraging the use of BMPs. Board members and land owners should refer to <http://www.state.ma.us/dep/brp/dws/dwspubs.htm> and <http://www.state.ma.us/dep/consumer/animal.htm#dwqual> for resources.

2. Transportation Corridors – There are many local roads located throughout the watersheds of the reservoirs, including many that are dirt roads. A section of State Route 202 runs through the Zone A of the McLean Reservoir. The storm drains along Route 202 through the McLean Reservoir watershed reportedly discharge outside of the watershed. Though most roadways throughout the Manhan Reservoir watershed are low-use, due to the close proximity of some of the roads to the reservoir and Zone A, even typical roadway maintenance and use pose a potentially significant source of contamination from accidents and washouts along the dirt road. De-icing materials, petroleum chemicals, and other debris on roads within the watershed, are picked up by stormwater, discharged into brooks and streams and ultimately into the reservoirs.

There are numerous unpaved, ways as well as legal (authorized) and illegal (unauthorized) trails throughout the watersheds. Most of these roads and trails are not maintained at all or are minimally maintained. The resulting erosion poses a significant threat to water quality in areas that are proximal to feeder streams and the reservoirs, potentially resulting in additional water treatment costs if they continue unchecked. Uncontrolled erosion contributes sediment, various contaminants and pathogens into the contributing waters and reservoirs. Access to the reservoirs was observed and anecdotal information indicates evidence of recreating near the reservoirs and throughout the watersheds. Unmanaged access may result in vandalism, illegal dumping and access to the reservoir resulting in water quality impairment.

The Holyoke Water Works has adopted an aggressive watershed inspection and patrol program as part of the watershed protection. Patrols by the Water Works staff and the local police have notably decreased the number of trespassers in the watershed.

Transportation Corridor Recommendations:

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

- ✓ As stipulated in the WRPP, continue to inspect stormwater drainage along the local roads and trails in the watershed. As proposed, consider various strategies to detain/slow the flow, redirect runoff out of the watershed or retain/detain sediments from roads within the watershed. If any significant stormwater threats are identified within the watersheds located outside of Holyoke, the Water Works should foster a relationship with the communities to evaluate and mediate those erosion threats. Consider coordinating efforts for work and cost sharing with the local communities on issues potentially impacting the reservoirs.
- ✓ If your on-going work identifies specific trails, roads or ways as sources of erosion or trespassing, continue to evaluate all options for access management. This may include investigating the legal disposition of all roads, ways and “trails” to facilitate efforts to control access in the watershed. Options may include continuing full access, where it may be feasible, closing roads to all traffic, closing roads to all commercial traffic and limiting access only to residents with a locked gate and key for residents only.
- ✓ Continue the aggressive patrols of watershed land and enforce existing policies for no trespassing or limited access on city-owned land.
- ✓ Continue to inspect, maintain, and clean catchbasins or BMPs on a regular schedule as stipulated in the WRPP.
- ✓ Continue to inspect and evaluate existing conditions throughout the watershed

Top 5 Reasons to Develop a Local Surface Water Protection Plan

- ❶ Reduces Risk to Human Health
- ❷ Cost Effective! Reduces or Eliminates Costs Associated With:
 - ♦ Increased monitoring and treatment
 - ♦ Water supply clean up and remediation
 - ♦ Replacing a water supply
 - ♦ Purchasing water
- ❸ Supports municipal bylaws, making them less likely to be challenged
- ❹ Ensures clean drinking water supplies for future generations
- ❺ Enhances real estate values - clean drinking water is a local amenity. A community known for its great drinking water in a place people want to live and businesses want to locate.

with respect to current illegal use of watershed land, specifically by ATVs. Determine where access is being gained and what are the destination points and, as noted previously, determine status of the access ways to assist in your strategy to eliminate and/or control access. Other utilities have reported some success in controlling access by increasing no trespassing signage at identified access points and periodically impounding the vehicles of trespassers.

- ✓ Continue working with local emergency response teams to ensure effective management of potential spills.
- ✓ Communities within your watershed may be eligible for USDA funding for mitigation and prevention of runoff pollution through the Environmental Quality Incentives Program (EQIP). The USDA web site is www.rurdev.usda.gov or call the Rural Development Manager at the local office in Hadley at 413-585-1000. Board members from rural communities should review the fact sheet available online at <http://www.nrcs.usda.gov/programs/farmland/2002/pdf/EQIPFct.pdf> and call the NRCS office in Amherst 413-253-4350 for assistance and for information. Erosion control is a goal identified in the WRPP; these sources of funding may be able to provide funding for mitigation of stormwater issues to protect the Holyoke Water Works resource.

3. Forestry/Watershed Management – The Holyoke Water Work’s WRPP includes a proposal to update the forest management plan as the current plan is outdated. The Water Works Superintendent recently reported that they will be updating and implementing the plan. Logging in a forest without a well-designed plan may result in poor water quality and an unhealthy forest. However, with the use of a properly designed watershed forest management plan and the enforced use of BMPs, forest management may enhance the water production and quality of the raw water. Higher quality raw water can result in reduced treatment cost. Unmanaged forests may result in an even aged forest that is susceptible to fires and disease. Aquatic wildlife such as birds, beavers or muskrats, are currently being managed in the watershed on an as needed basis.

Forestry/Watershed Management Recommendations:

- ✓ As discussed in the WRPP, prepare a water supply forest management plan and include in the plan, an evaluation of existing conditions, a forest inventory and forest management plan specifically designed for water supply management. Require the use of BMPs and/or minimize forest roads that may exacerbate public access issues.
- ✓ Continue to implement the WRPP through regular watershed inspections and enforcement of policies. As necessary, exploring aggressive enforcement efforts such as impoundment of off road vehicles and issuance of citations for violators to control the use of ATVs.

4. Protection Planning – The Watershed Resource Protection Plan has been updated and the Water Works maintains a waiver from filtration for the Manhan and McLean Reservoirs. These types of protection plans coordinate community efforts, identify protection strategies, establish a timeframe for implementation, and provide a forum for public education and outreach. Currently, the host communities of Westhampton and Huntington do have some protective bylaws in place. However, Southampton and Montgomery do not have Watershed Protection Districts or Bylaws. As noted, the Water Works owns approximately greater than 50% of the watersheds so that they are partially “protected.”

Protection planning should include minimizing the potential threat to the groundwater at the Water Works unused well sites. Those sources, although unused by the Water Works could pose a potential liability and hazard unless managed

properly and the Water Works should continue current efforts to inspect and ensure the well sites are secure.

Protection Planning Recommendations:

- ✓ Continue to implement the watershed protection plan and update the plan as necessary. Watershed access, forest management and roads/dirt roads maintenance should be addressed, especially at brook crossings and proximal to the reservoirs. Establish a protection team, and utilize <http://mass.gov/dep/brp/dws/protect.htm> for a copy of DEP’s guidance, “Developing a Local Watershed Protection Plan” on ways to include local officials.
- ✓ Encourage local officials to compare local watershed protection controls with current MA Watershed Protection Regulations 310 CMR 22.21(2) and to adopt controls that comply with 310 CMR 22.21(2) if they do not. For more information on DEP land use controls, see <http://mass.gov/dep/brp/dws/protect.htm>.

For More Information

Contact Catherine V. Skiba in DEP’s Springfield Office at (413) 755-2119 for more information and assistance on improving current protection measures.

Copies of this report have been provided to the public water supplier, town boards, and the local media.

- ✓ Water suppliers already have established a protocol to be made aware of major developments and projects proposed for communities within which the watershed is located. As development pressures increase in hilltown communities, small, residential developments may also increase. When locals boards notify the Water Works of projects in the watershed, continue your current practice of reviewing and commenting on those plans as appropriate.
- ✓ Continue to implement the land acquisition strategies set forth in the WRPP and consider alternative, less costly strategies to a fee simple purchase of land. Consider negotiating a Memorandum of Understanding, Right of First Refusal agreement or purchasing conservation restrictions for land not currently owned by the Water Works.
 - A Memorandum of Understanding (MOU) is an agreement between the landowner and public water supplier in which the landowner agrees not to engage in specific threatening activities. The MOU should be specific to the land use or activity. For example, if the land is residential with a septic system the owner could agree not to place chemicals, petroleum products, or other hazardous or toxic substances, including septic system cleaners, into the septic system, and agree that the system will be pumped at a specific frequency. Understanding how an activity threatens drinking water quality is an important component of developing an effective MOU. An MOU should be recorded on the property deed.
 - A Right of First Refusal is a legal document that gives the water supplier the first chance to purchase land when it becomes available. See Right of First Refusal in the Appendices.
 - Purchasing the development rights on land is equivalent to paying to apply Conservation Restrictions or Easements. This option allows the land owner to retain ownership of the land but limit usage on some of the land. This is a legal document that can be executed in various forms.

5. Utility Line Right-of-Way – A natural gas line runs through the McLean Reservoir watershed. Normal maintenance of a right-of-way can introduce contaminants to a water supply through herbicide application for vegetation control. The over-application or improper handling of herbicides on a right-of-way is a potential source of contamination. Leaks or spills of chemicals used for maintenance of the line are also potential sources of contamination to the water supply.

Right of Way Recommendations:

- ✓ Review the right-of-way Yearly Operating Plan (YOP) from the utility company to ensure it has accurate information regarding the locations of the Zone A and that only mechanical methods are used for vegetation control. If the utility has not provided the Water Works with a copy of the YOP, they may have sent it to the Holyoke Conservation Commission. Review, or request that the Conservation Commission review the maps the utility uses for accuracy. If the maps are not accurate, provide them with maps from your records. The Water Works should only need to do this one time and it may be accomplished by sending a copy of the watershed map to the utility. It is the responsibility of the utility to comply with regulations governing vegetation control in rights-of-way.

Land uses and activities within the watershed that are potential sources of contamination are included in Table 2. Identifying potential sources of contamination is an important initial step in protecting your drinking water sources. Further local investigation will provide more in-depth information and may identify new land uses and activities that are potential sources of contamination. Once potential sources of contamination are identified, specific recommendations like those below should be used to better protect your water supply.

Section 3: Source Water Protection Conclusions and Recommendations

Current Land Uses and Source Protection:

As with many water supply protection areas, the system's watershed contains potential sources of contamination. However, source protection measures reduce the risk of actual contamination, as illustrated in Figure 2. The water supplier is commended for taking an active role in promoting source protection measures in the Water Supply Protection Areas through:

- Preparing and implementing a Watershed Resource Protection Plan.
- Actively pursuing watershed protection throughout hiring staff to conduct inspections, control wildlife activities and enforce watershed rules.
- Previous efforts to purchase and protect watershed land critical to protection of the reservoir.

Source Protection Recommendations:

To better protect the sources for the future:

- ✓ Continue to implement the WRPP and update the plan as milestones are achieved or changes occur in the watershed.
- ✓ Continue to implement the land acquisition and protection strategy as outlined in the WRPP. Consider alternate strategies to fee simple land purchase to protect critical land near the reservoirs and feeder streams.
- ✓ Continue inspection of the protection areas regularly, and when feasible, remove any non-water supply activities.
- ✓ Continue efforts to control access to the watersheds, through patrols, public education and controlling watershed access points.
- ✓ Continue the education of residents on ways they can help you to protect drinking water sources.
- ✓ Work with landowners in your protection areas to make them aware of your water supply and to encourage the use of best management practices for residential and recreational uses.
- ✓ Encourage the communities of Westhampton, Southampton, Huntington and Montgomery to adopt water supply protection bylaws/regulations, to provide information to residents regarding the use of BMPs and to encourage residents to participate in local household hazardous waste collection days.
- ✓ Develop and implement a Forest Management Plan for water supply protection.
- ✓ Review stormwater management and access management on ways closest to the reservoirs and feeder streams.

Conclusions:

These recommendations are only part of your ongoing local drinking water source protection efforts. Additional source protection recommendations are listed in Table 3, the Key Issues above and Appendix A.

DEP staff, informational documents, and resources are available to help you build on this SWAP report as you continue to improve drinking water protection in your community. Grants and loans are available through the Drinking Water State Revolving Loan Fund, the Clean Water State Revolving Fund, and other sources. For more information on grants and loans, visit the Bureau of Resource Protection's Municipal Services web site at: <http://mass.gov/dep/brp/mf/mfpubs.htm>. The USDA also has various funding sources for government agencies, non-government organizations and agricultural facilities through programs such as those listed on the USDA web site <http://search.sc.egov.usda.gov/nrcs.asp?qu=eqip&ct=NRCS>. One program in particular, the Environmental Quality Incentives Program (EQIP) may be utilized in a variety of projects from DPW stormwater management to farm nutrient management designed to protect surface and groundwater. Review the fact sheet available online at <http://www.nrcs.usda.gov/programs/farmbill/2002/pdf/EQIPFct.pdf> and call the local office (Hadley 413-585-1000) of the NRCS for assistance.

The Massachusetts Department of Food and Agriculture's Agricultural Environmental Enhancement Program (AEEP) provides funding to farmers to install a variety of water quality protection practices. For more information on the program contact the coordinator, Susan Phinney, at (617) 626-1772, Susan.Phinney@state.ma.us.

The assessment and protection recommendations in this SWAP report are provided as a tool to encourage community discussion, support ongoing source protection efforts, and help set local drinking water protection priorities. Citizens and community officials should use this SWAP report to encourage discussion of local drinking water protection measures. The water supplier should supplement this SWAP report with local information on potential sources of contamination and land uses. Local information should be maintained and updated periodically to reflect land use changes in the watershed. Use this information to set priorities, target inspections, focus education efforts, and to update your long-term drinking water source protection plan.

Section 4: Appendices

- A. Protection Recommendations
- B. Additional Documents on Source Protection

Table 3: Current Protection and Recommendations

Protection Measures	Status	Recommendations
Zone A		
Does the Public Water Supplier (PWS) own or control the entire Zone A?	YES	Follow Best Management Practices (BMPs) that focus on good housekeeping, spill prevention, and operational practices to reduce the use and release of hazardous materials.
Is the Zone A posted with “Public Drinking Water Supply” Signs?	NO	Additional economical signs are available from the Northeast Rural Water Association (802) 660-4988.
Is the Zone A regularly inspected?	YES	Continue inspections of drinking water protection areas. Increase frequency when possible. Investigate access controls.
Are water supply related activities the only activities within the Zone A?	YES	Continue monitoring non-water supply activities in Zone A and throughout watershed.
Municipal Controls (Zoning Bylaws, Health Regulations, and General Bylaws)		
Does the municipality have Surface Water Protection Controls that meet 310 CMR 22.20 C?	YES	Holyoke has protective ordinances and erosion control ordinances.
Do neighboring communities protect the water supply protection areas extending into their communities?	NO	Request that Planning Boards, Boards of Health and/or Conservation Commissions consider adopting protection controls within the watershed. Consider providing examples of Holyoke’s Erosion Control Ordinance to communities.
Planning		
Does the PWS have a local Surface Water Protection Plan?	YES	Review and update the plan as necessary. Continue efforts to establish and update a forest management plan, inspect erosion controls and access issues. Follow “Developing a Local Surface Water Protection Plan” available at: www.state.ma.us/dep/brp/dws for guidance on how to include local officials in protection strategy.
Does the PWS have a formal “Emergency Response Plan” to deal with spills or other emergencies?	Partial	Continue working jointly with emergency response teams including fire and police departments, local Boards of Health, and local and state emergency officials. Continue to coordinate emergency response drills with local teams.
Does the municipality have a watershed protection committee?	NO	Consider establishing a committee and include representatives from citizens’ groups, neighboring communities, and the business community as is appropriate to assist in protection of the watershed land.
Does the Board of Health conduct inspections of commercial and industrial activities?	N/A	
Does the PWS provide watershed protection education?	YES	Continue providing education at schools and include boards of communities within the watershed.